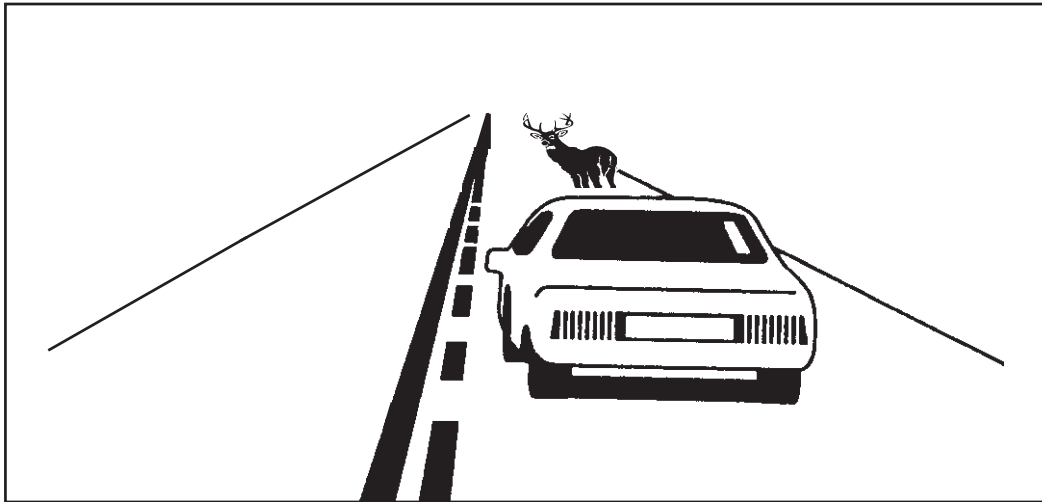


MISSOURI STATE HIGHWAY PATROL



ANALYSIS OF DEER INVOLVEMENT IN MISSOURI TRAFFIC CRASHES 2007

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INTRODUCTION

In recent years, Missouri traffic safety authorities have expressed concern over (1) animal-vehicle crashes involving deer and (2) crashes caused by drivers avoiding deer on roadways. This is one in a series of reports designed to identify the seriousness and characteristics of deer-involved traffic crashes on Missouri's public roadways.

1. METHODOLOGY

Perviously, data from the National Highway Traffic Safety Administration (NHTSA), Fatality Analysis Reporting System (FARS) were used to analyze deer-involved fatal crashes in the State. Due to the delay in obtaining FARS data, analysis of those fatal crashes where drivers made evasive maneuvers to avoid deer and no deer were struck but their evasive maneuvers contributed to the cause of the traffic crash will no longer be available in this report. That data may still be obtained from NHTSA.

Data from the Missouri Statewide Traffic Accident Records System (STARS) will be used for this report. Using STARS data, all 2007 Missouri traffic crashes where a deer was struck as part of the first harmful event were identified and analyzed (not just fatal crashes). However, this information source was limited in that it did not contain data identifying traffic crashes involving a deer avoidance maneuver where the animal was **not** struck. As a result, analysis could not be conducted on the deer avoidance maneuver problem associated with all Missouri traffic crashes.

2. DISCUSSION OF FINDINGS

The following is a discussion of findings obtained from an analysis of Missouri's 2007 traffic crashes related to deer involvement:

- In 2007, Missouri had 3,419 traffic crashes where deer-vehicle strikes occurred in the first harmful event. One deer strike occurred every 2.6 hours in the State.
- In 2007, 5 people were killed and 351 injured in these types of crashes. One person was killed or injured every 1.0 days.
- Of all deer strike traffic crashes, 29.6% occurred in an urban area and 70.4% occurred in a rural area of the State. Even though rural areas seem to be overrepresented, the eight highest ranking Missouri counties experiencing this problem are associated with major metropolitan areas. These include: Jackson, Platte, Clay, St. Louis, Jefferson, Franklin, St. Charles, and Johnson. Deer strike traffic crashes in these counties account for 40.4% of the total.
- Four out of five, or 80.5%, of the 2007 deer strike crashes occurred on State-maintained roadways. The greatest proportion occurred on State Numbered Routes (27.6%), followed closely by U.S. Highways (23.9%) and State Lettered Routes (16.7%). An additional 12.0% occurred on Interstates, 11.7% on City Streets, and 6.4 % on County Roads.
- Calculations show slightly less than half, or 45.6%, of the 2007 deer strike crashes occurred from October through December, with the largest proportion in November (22.8%). When discussing this with the Missouri Department of Conservation, they suggested the major cause of increased roadway crossings by deer during this period is mating season. The peak occurs about mid-November. In addition, deer hunting season also may cause an increase in roadway crossings. The slight increase in deer-involved crashes noted in the spring months may be attributed to yearling fawns dispersing from their mothers just prior to the arrival of newborns.
- Thursday, Friday, and Saturday were the most likely weekdays for deer strike crashes to occur. Slightly less than one-half, or 43.7%, occurred on these three days in 2007.
- The majority of deer strike crashes occurred from 5:00 p.m. through 6:59 a.m. This time period accounted for 84.9% of the total.
- Of the drivers striking deer, 61.0% were male and 39.0% were female. The average age of the driver was 40.0 years.
- Of the drivers striking deer, 85.7% had a Missouri driver's license, 13.8% had an out-of-state driver's license, and 0.5% were unlicensed at the time of the crash.

3. FINDINGS

The following is a series of tables and figures which characterize Missouri's 2007 deer strike traffic crash problem.

2007 MISSOURI TRAFFIC CRASHES

DEER STRIKE INVOLVEMENT

	FATAL		PERSONAL INJURY		PROPERTY DAMAGE		TOTAL		TOTAL NUMBER ¹ KILLED INJURED		DRIVERS/PASSENGERS OF VEHICLES STRIKING DEER ² KILLED INJURED	
		%		%		%		%		%		%
DEER INVOLVED	5	0.6	276	0.7	3,138	2.5	3,419	2.1	5	351	3	336
OTHER INVOLVEMENT	895	99.4	40,705	99.3	121,033	97.5	162,633	97.9	987	59,649	-	-
TOTAL	900	100.0	40,981	100.0	124,171	100.0	166,052	100.0	992	60,000	3	336

¹This statistic indicates the total number of persons killed and injured in a crash where a deer was struck during the first harmful event in a crash.

²This statistic indicates the number of drivers and passengers of vehicles striking deer during the first harmful event in a crash who were killed and injured.

TABLE 2

**MISSOURI TRAFFIC SAFETY DEER INVOLVEMENT
PROBLEM ANALYSIS CLOCK**

2007

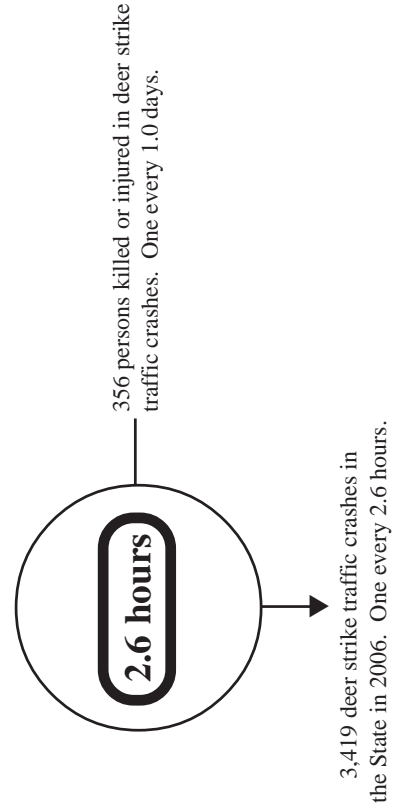


FIGURE 1

2007 MISSOURI DEER CRASHES

AREA CLASSIFICATION BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
URBAN	0	0.0	66	23.9	946	30.2	1,012	29.6
RURAL	5	100.0	210	76.1	2,192	69.8	2,407	70.4
TOTAL	5	100.0	276	100.0	3,138	100.0	3,419	100.0

TABLE 3

2007 MISSOURI DEER CRASHES

ROAD CURVATURE BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
STRAIGHT	5	100.0	243	88.0	2,270	87.1	2,518	87.2
CURVE	0	0.0	33	12.0	337	12.9	370	12.8
UNKNOWN	0	-	0	-	531	-	531	-
TOTAL	5	100.0	276	100.0	3,138	100.0	3,419	100.0

TABLE 4

2007 MISSOURI DEER CRASHES

ROAD INCLINE BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
LEVEL	1	20.0	159	58.2	1,627	62.7	1,787	62.2
HILL	3	60.0	107	39.2	895	34.5	1,005	35.0
CREST	1	20.0	7	2.6	73	2.8	81	2.8
UNKNOWN	0	-	3	-	543	-	546	-
TOTAL	5	100.0	276	100.0	3,138	100.0	3,419	100.0

TABLE 5

2007 MISSOURI DEER CRASHES

ROAD CONDITIONS BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
DRY	0	0.0	49	18.0	429	16.4	478	16.5
WET	5	100.0	220	80.6	2,153	82.4	2,378	82.3
SNOW	0	0.0	0	0.0	0	0.0	0	0.0
ICE	0	0.0	3	1.1	21	0.8	24	0.8
SLUSH	0	0.0	0	0.0	0	0.0	0	0.0
MUD	0	0.0	1	0.4	10	0.4	11	0.4
STANDING WATER	0	0.0	0	0.0	0	0.0	0	0.0
MOVING WATER	0	0.0	0	0.0	0	0.0	0	0.0
UNKNOWN	0	-	3	-	525	-	528	-
TOTAL	5	100.0	276	100.0	3,138	100.0	3,419	100.0

TABLE 6

2007 MISSOURI DEER CRASHES

HIGHWAY CLASSIFICATION BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
INTERSTATE	0	0.0	23	8.3	388	12.4	411	12.0
U.S. HIGHWAY	1	20.0	72	26.1	744	23.7	817	23.9
STATE NUMBERED	0	0.0	82	29.7	860	27.4	942	27.6
SINGLE STATE LETTERED	2	40.0	41	14.9	378	12.1	421	12.3
DOUBLE STATE LETTERED	0	0.0	14	5.1	137	4.4	151	4.4
OUTER ROAD	0	0.0	1	0.4	14	0.5	15	0.4
COUNTY ROAD	2	40.0	16	5.8	201	6.4	219	6.4
CITY STREET	0	0.0	22	8.0	379	12.1	401	11.7
INTERSTATE LOOP	0	0.0	1	0.4	8	0.3	9	0.3
OTHER ¹	0	0.0	4	1.5	29	0.9	33	1.0
TOTAL	5	100.0	276	100.0	3,138	100.0	3,419	100.0

¹"Other" includes types of roads that are maintained by the State as well as by local jurisdictions.

TABLE 7

2007 MISSOURI DEER CRASHES

HIGHWAY CLASSIFICATION BY AREA CLASSIFICATION AND CRASH SEVERITY

	URBAN						RURAL									
	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
INTERSTATE	0	0.0	10	15.2	129	13.6	139	13.7	0	0.0	13	6.2	259	11.8	272	11.3
U.S. HIGHWAY	0	0.0	14	21.2	182	19.2	196	19.4	1	20.0	58	27.6	562	25.6	621	25.8
STATE NUMBERED	0	0.0	13	19.7	213	22.5	226	22.3	0	0.0	69	32.9	647	29.5	716	29.8
SINGLE STATE LETTERED	0	0.0	4	6.1	31	3.3	35	3.5	2	40.0	37	17.6	347	15.8	386	16.0
DOUBLE STATE LETTERED	0	0.0	0	0.0	14	1.5	14	1.4	0	0.0	14	6.7	123	5.6	137	5.7
OUTER ROAD	0	0.0	1	1.5	1	0.1	2	0.2	0	0.0	0	0.0	13	0.6	13	0.5
COUNTY ROAD	0	0.0	2	3.0	31	3.3	33	3.3	2	40.0	14	6.7	170	7.8	186	7.7
CITY STREET	0	0.0	19	28.8	331	35.0	350	34.6	0	0.0	3	1.4	48	2.2	51	2.1
INTERSTATE LOOP	0	0.0	1	1.5	3	0.3	4	0.4	0	0.0	0	0.0	5	0.2	5	0.2
OTHER ¹	0	0.0	2	3.0	11	1.2	13	1.3	0	0.0	2	1.0	18	0.8	20	0.8
TOTAL	0	0.0	66	100.0	946	100.0	1,012	100.0	5	100.0	210	100.0	2,192	100.0	2,407	100.0

¹ "Other" includes types of roads that are maintained by the State as well as by local jurisdictions.

TABLE 8

**2007 MISSOURI DEER CRASHES
MONTH OF YEAR**

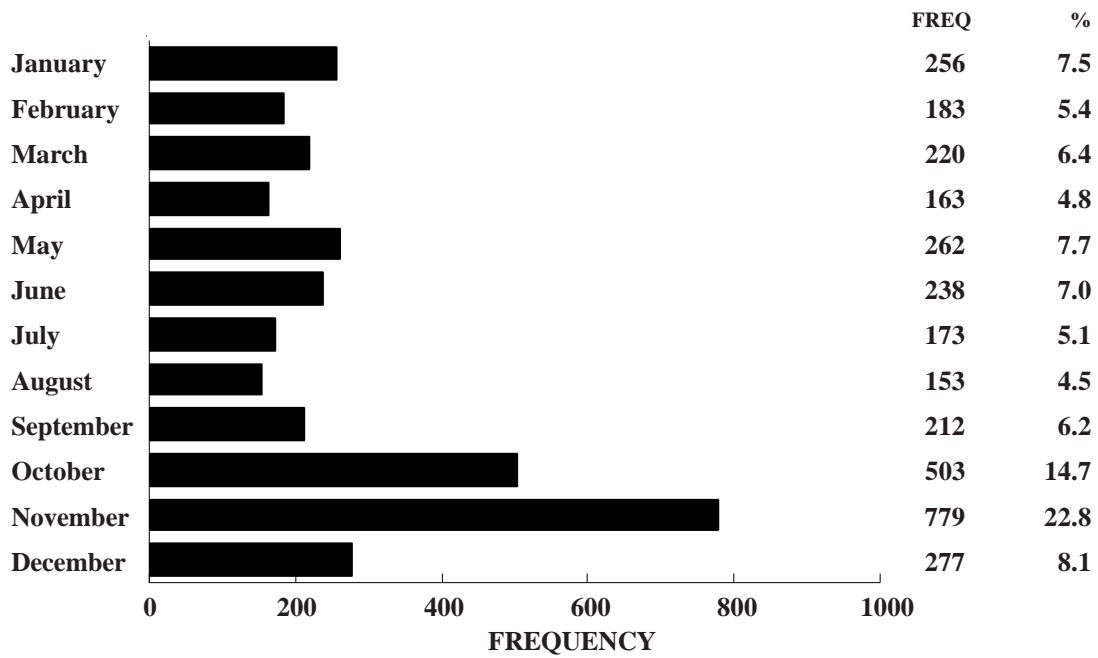


FIGURE 2

**2007 MISSOURI DEER CRASHES
DAY OF WEEK**

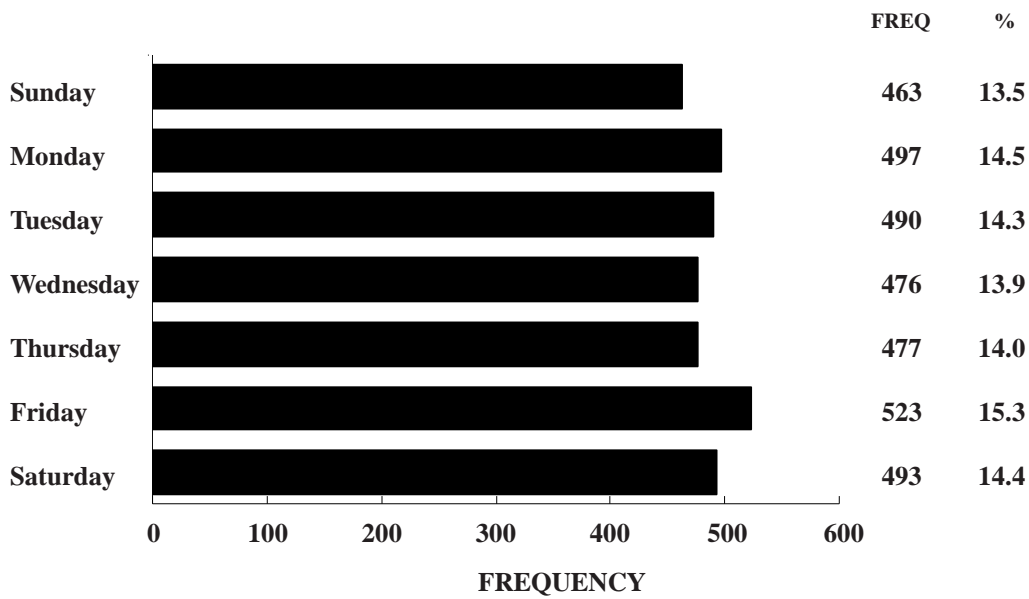


FIGURE 3

**2007 MISSOURI DEER CRASHES
HOUR OF DAY**

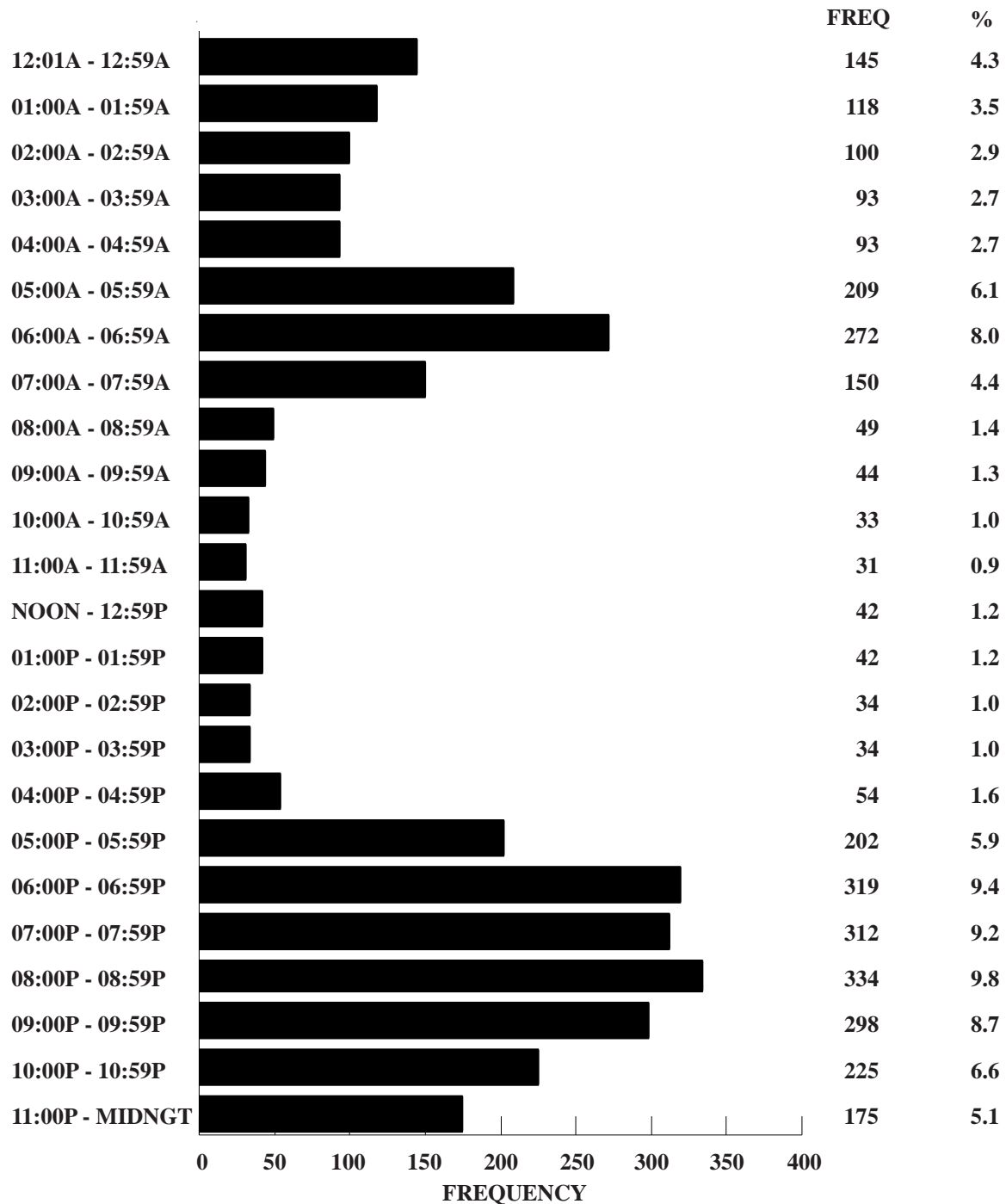


FIGURE 4

Unknown Data Not Included

2007 MISSOURI DEER CRASHES¹

TYPE OF VEHICLE STRIKING DEER BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
AUTOMOBILE	1	25.0	139	50.4	1,621	51.8	1,761	51.6
SPORT UTILITY VEHICLE	0	0.0	20	7.3	538	17.2	558	16.4
LIMOUSINE	0	0.0	0	0.0	0	0.0	0	0.0
VAN	0	0.0	20	7.3	305	9.7	325	9.5
BUS	0	0.0	1	0.4	4	0.1	5	0.2
SCHOOL BUS	0	0.0	0	0.0	2	0.1	2	0.1
MOTORCYCLE	3	75.0	72	26.1	4	0.1	79	2.3
MOPED	0	0.0	1	0.4	0	0.0	1	0.0
MOTORHOME / CAMPER	0	0.0	0	0.0	2	0.1	2	0.1
FARM EQUIPMENT	0	0.0	0	0.0	0	0.0	0	0.0
CONSTRUCTIONEQUIPMENT	0	0.0	0	0.0	0	0.0	0	0.0
OTHER TRANSPORT DEVICE	0	0.0	0	0.0	4	0.1	4	0.1
PICK-UP TRUCK	0	0.0	20	7.3	543	17.3	563	16.5
OTHER TRUCKS	0	0.0	1	0.4	108	3.5	109	3.2
ALL TERRAIN VEHICLE	0	0.0	2	0.7	0	0.0	2	0.1
UNKNOWN	0	-	0	-	6	-	6	-
TOTAL	4	100.0	276	100.0	3,137	100.0	3,417	100.0

¹This table includes only those vehicles striking a deer during the first harmful event in a crash.

TABLE 9

VEHICLES STRIKING DEER IN 2007 MISSOURI CRASHES¹

DRIVER INVOLVEMENT BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
DRIVERLESS	0	0.0	0	0.0	0	0.0	0	0.0
KNOWN DRIVER INVOLVED	4	100.0	275	99.6	3,137	100.0	3,416	100.0
UNKNOWN DRIVER INVOLVED	0	0.0	1	0.4	0	0.0	1	0.0
TOTAL	4	100.0	276	100.0	3,137	100.0	3,417	100.0

¹This table includes only vehicles striking deer during the first harmful event in a crash.

TABLE 10

DRIVERS OF VEHICLES STRIKING DEER IN 2007 MISSOURI CRASHES¹

SEX OF DRIVER BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
MALE	4	100.0	171	62.2	1,660	60.8	1,835	61.0
FEMALE	0	0.0	104	37.8	1,071	39.2	1,175	39.0
UNKNOWN	0	-	1	-	406	-	407	-
TOTAL	4	100.0	276	100.0	3,137	100.0	3,417	100.0

¹The table includes only drivers of vehicles striking deer during the first harmful event in a crash.

TABLE 11

DRIVERS OF VEHICLES STRIKING DEER IN 2007 MISSOURI CRASHES¹

AGE OF DRIVER BY CRASH SEVERITY

	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
AVERAGE AGE OF DRIVER	39.8	-	40.4	-	40.0	-	40.0	-
14 YEARS AND UNDER	0	0.0	0	0.0	0	0.0	0	0.0
15 - 20 YEARS	1	25.0	26	9.5	267	8.5	294	8.6
21 - 25 YEARS	0	0.0	33	12.1	386	12.3	419	12.3
26 - 30 YEARS	0	0.0	25	9.2	328	10.5	353	10.4
31 - 35 YEARS	1	25.0	28	10.3	335	10.7	364	10.7
36 - 40 YEARS	1	25.0	17	6.2	353	11.3	371	10.9
41 - 45 YEARS	0	0.0	34	12.5	340	10.9	374	11.0
46 - 50 YEARS	0	0.0	39	14.3	350	11.2	389	11.4
51 - 55 YEARS	0	0.0	27	9.9	260	8.3	287	8.4
56 - 60 YEARS	0	0.0	23	8.4	207	6.6	230	6.8
61 - 65 YEARS	0	0.0	11	4.0	134	4.3	145	4.3
66 YEARS AND OVER	1	25.0	10	3.7	167	5.3	178	5.2
UNKNOWN	0	-	3	-	10	-	13	-
TOTAL	4	100.0	276	100.0	3,137	100.0	3,417	100.0

¹This table includes only drivers of vehicles striking deer during the first harmful event in a crash.

TABLE 12

DRIVERS OF VEHICLES STRIKING DEER IN 2007 MISSOURI CRASHES¹

DRIVER'S LICENSE STATE AND TYPE BY CRASH SEVERITY

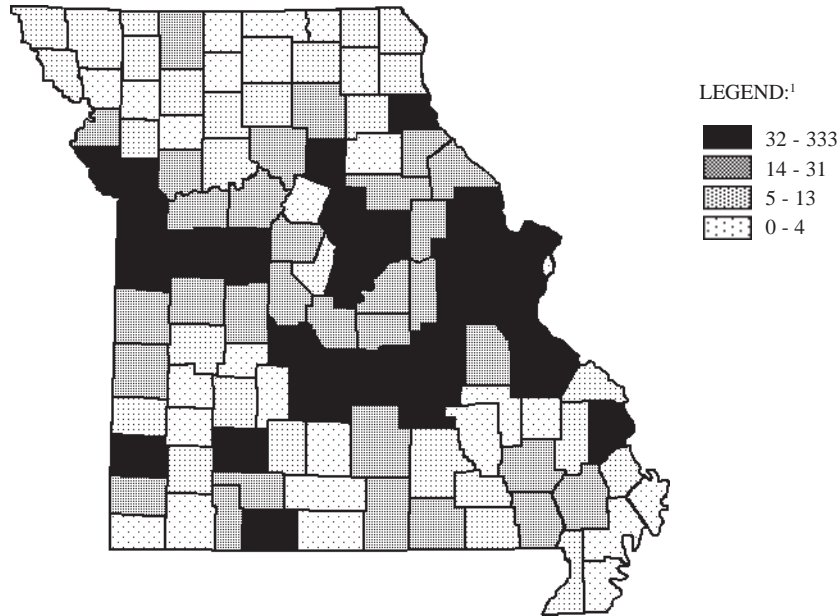
	FATAL	%	PERSONAL INJURY	%	PROPERTY DAMAGE	%	TOTAL	%
MISSOURI								
LEARNER'S PERMIT	0	0.0	2	0.7	0	0.0	2	0.1
OPERATOR'S LICENSE	4	100.0	218	79.6	2,038	78.2	2,260	78.4
MOTORCYCLE ONLY	0	0.0	0	0.0	0	0.0	0	0.0
COMMERCIAL DRIVER'S LICENSE	0	0.0	24	8.8	186	7.1	210	7.3
SUB-TOTAL	4	100.0	244	89.1	2,224	85.4	2,472	85.7
OUT STATE								
LEARNER'S PERMIT	0	0.0	0	0.0	1	0.0	1	0.0
OPERATOR'S LICENSE	0	0.0	23	8.4	321	12.3	344	11.9
MOTORCYCLE ONLY	0	0.0	0	0.0	0	0.0	0	0.0
COMMERCIAL DRIVER'S LICENSE	0	0.0	3	1.1	50	1.9	53	1.8
SUB-TOTAL	0	0.0	26	9.5	372	14.3	398	13.8
UNLICENSED	0	0.0	4	1.5	9	0.4	13	0.5
UNKNOWN	0	-	2	-	532	-	534	-
TOTAL	4	100.0	276	100.0	3,137	100.0	3,417	100.0

¹This table includes only drivers of vehicles striking deer during the first harmful event in a crash.

TABLE 13

2007 MISSOURI DEER CRASHES

COUNTY QUARTILE ANALYSIS



¹LEGEND CATEGORIES ARE BASED ON QUARTILES OF COUNTIES.

RANK	COUNTY	FREQUENCY	PERCENT	RANK	COUNTY	FREQUENCY	PERCENT
1.0	JACKSON	333	9.7	22.0	LACLEDE	42	1.2
2.0	PLATTE	204	6.0	23.0	CRAWFORD	39	1.1
3.0	CLAY	193	5.6	24.5	JASPER	38	1.1
4.0	ST. LOUIS	165	4.8	24.5	RANDOLPH	38	1.1
5.0	JEFFERSON	164	4.8	26.5	CAMDEN	36	1.1
6.0	FRANKLIN	113	3.3	26.5	PETTIS	36	1.1
7.0	ST. CHARLES	110	3.2	28.0	DENT	34	1.0
8.0	JOHNSON	103	3.0	29.0	TANEY	32	0.9
9.0	BOONE	99	2.9				
10.0	PHELPS	79	2.3				First Quartile
11.0	LINCOLN	73	2.1				
12.0	CASS	70	2.0				Second Quartile
13.0	ST. FRANCOIS	66	1.9	30.0	HOWELL	31	0.9
14.0	PULASKI	64	1.9	31.0	WASHINGTON	30	0.9
15.0	CAPE GIRARDEAU	60	1.8	32.0	LAFAYETTE	29	0.8
16.0	CALLAWAY	54	1.6	33.0	BATES	28	0.8
17.0	GREENE	52	1.5	34.0	BENTON	27	0.8
18.5	STE. GENEVIEVE	51	1.5	35.5	BUTLER	26	0.8
18.5	WARREN	51	1.5	35.5	MORGAN	26	0.8
20.0	COLE	46	1.3	37.0	WAYNE	25	0.7
21.0	MARION	43	1.3	39.0	BUCHANAN	23	0.7
				39.0	MILLER	23	0.7

2007 MISSOURI DEER CRASHES

CITY LISTING

RANK	CITY	FREQUENCY	PERCENT ¹
1.0	KANSAS CITY	267	20.9
2.0	LEE'S SUMMIT	59	4.6
3.5	INDEPENDENCE	33	2.6
3.5	JEFFERSON CITY	33	2.6
5.0	PARKVILLE	32	2.5
6.5	CAPE GIRARDEAU	29	2.3
6.5	COLUMBIA	29	2.3
8.0	WILDWOOD	26	2.0
9.0	OSAGE BEACH	24	1.9
11.0	BLUE SPRINGS	23	1.8
11.0	JOPLIN	23	1.8
11.0	SPRINGFIELD	23	1.8
13.0	LIBERTY	20	1.6
14.0	WARRENSBURG	19	1.5
16.0	FULTON	17	1.3
16.0	HANNIBAL	17	1.3
16.0	WENTZVILLE	17	1.3
19.0	CHESTERFIELD	16	1.3
19.0	MANCHESTER	16	1.3
19.0	ST. JOSEPH	16	1.3
22.0	BRANSON	14	1.1
22.0	JACKSON	14	1.1
22.0	LAKE LOTAWANA	14	1.1
24.0	MOBERLY	13	1.0
26.0	NORTH KANSAS CITY	12	0.9
26.0	O'FALLON	12	0.9
26.0	RIVERSIDE	12	0.9
29.5	HARRISONVILLE	11	0.9
29.5	MARYLAND HEIGHTS	11	0.9
29.5	ROLLA	11	0.9
29.5	UNION	11	0.9
33.0	ELLISVILLE	10	0.8
33.0	LAKE OZARK	10	0.8
33.0	ST. ROBERT	10	0.8
36.0	ARNOLD	9	0.7
36.0	GRANDVIEW	9	0.7
36.0	WESTON	9	0.7
38.0	FARMINGTON	8	0.6
43.0	EUREKA	7	0.5
43.0	FESTUS	7	0.5
43.0	GLADSTONE	7	0.5
43.0	KNOB NOSTER	7	0.5
43.0	POPLAR BLUFF	7	0.5
43.0	ST. CHARLES	7	0.5
43.0	WARRENTON	7	0.5
43.0	WAYNESVILLE	7	0.5
43.0	WILLOW SPRINGS	7	0.5
50.5	BELTON	6	0.5
50.5	GRAIN VALLEY	6	0.5
50.5	KEARNEY	6	0.5
50.5	MOSCOW MILLS	6	0.5
50.5	PLATTSBURG	6	0.5
50.5	WRIGHT CITY	6	0.5

¹Percentage is based on deer involved crashes which occurred in Missouri municipalities with populations of 1,000 or more. Only those municipalities comprising 0.5% or more of these crashes are listed.

TABLE 15